

DOCUMENT RESUME

ED 176 780

IR 007 739

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TITLE Energy Information Systems.
PUB DATE 20 Aug 79
NOTE 41p.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Energy; *Information Systems; *Libraries; Library
Role; Library Services; *National Programs;
*Policy
IDENTIFIERS Great Britain

ABSTRACT

This paper examines the need for accurate, reliable data on energy, flowing upward to the national government from various energy-intensive information systems. Part I explores the need for a national policy coordinating this flow within both the United States and, for comparative purposes, Great Britain. Part II presents in outline form the distinctive features of selected energy libraries, and Part III focuses on the Energy Information Service of the University of Texas at Austin to provide a closer look at the role of libraries in performing this needed function. A brief summary commenting on the future of energy information concludes the paper.
(Author/JD)

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ENERGY INFORMATION SYSTEMS

Library Science 388K.5
Special Libraries
with
Prof. Eugene Jackson
University of Texas at Austin

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Celia E. Hales

August 20, 1979

ED176780

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AN INTRODUCTION TO THE PROBLEM:
FROM THE MACROCOSM TO THE MICROCOSM

The Oil Embargo of 1973-74 left the world community as a whole and the United States in particular in an extremely vulnerable position in regard to information resources and the structure to react effectively. We were literally left floundering, without the means to formulate, efficiently and quickly, policies that were sound and based upon adequate knowledge. As a result of this lack of any basic kind of energy information system, nationally, the steps that were taken were hasty and not undergirded by the strength of knowledge. Internationally, black market activity flourished not only in the exchange of oil itself, but also in information about oil. Within the United States, the quest for information was hardly less frantic; a hastily created federal structure and petroleum allocation procedure developed which served inadequately to meet the crisis.¹

We have seen in June and July of 1979 a slight return to the lengthy gas lines of that unfortunate period. If prognostication can be accepted (and we are warned that we as a nation must take heed), then energy crises will be a recurring (sometimes cyclical) pattern of the future. We need, therefore,

to be assured that the means to provide energy information that is both up-to-date and relevant is at our fingertips. This calls for national policy coordinating the flow of energy information; in effect, a national system. This need will be explored in Part I, first as applicable in the United States, and then in a comparative view of Great Britain, where the nationalization of the major energy industries provides an interesting contrast to our own problems of information exchange. Part II will move closer to the components of the energy information system: the libraries themselves that serve to undergird the research and other activities of energy-intensive operations. Finally, we will move in Part III to observe at first hand one example of an energy information service, a special library meant to serve research needs in an educational setting. Consequently, we will explore the ramifications of energy information systems from the macrocosmic view to the microcosmic. Finally, we will sum up the results of our exploration and offer some insight into the way of the future for energy information.

PART I: THE FLOW OF ENERGY INFORMATION

A national program for energy information in the United States must rely strongly upon the cooperative interaction between the private and public sector. This fact of life is sometimes hampered by the fairly widespread distrust, among the American people, of the accuracy and validity of the situation as described by the powerful energy companies in their public statements and in their lobbying before the U. S. Congress. Yet, with our system, there is no alternative to trusting their information and their figures. Former U. S. economic advisor for energy, William Johnson, openly acknowledges this dependence: "I don't see how you can get information that doesn't come from industry. . .The only way you can get data that doesn't come from industry is to have little bureaucratic gnomes taking statistics from each factory."² He goes on to say that we have to accept this data as more or less the truth, and he suggests that the notion that industry is falsifying data is "McCarthyite."³

Yet, in a democracy, the knowledge industry must ultimately be controlled by the people, not by energy barons of industry. Accordingly, the government has moved in the years since the

Oil Embargo to set up interactions that will ensure that the knowledge to act is not totally dependent upon the for-profit sector. Let us review some of these actions, setting them in their historical perspective.

The agencies and informational network that have been set up all reflect one overruling principle: energy presents a long-range problem. Before the Department of Energy was created, the Federal Energy Administration was the bureaucratic repository of the national plan for energy, deriving its responsibility from the Federal Energy Administration Act of 1974. One provision related to "information gathering power," and stipulated that the Administration would not only set up the framework for gathering external information but would also stimulate the production of internal information, which would be generated for both internal use and external circulation. The National Energy Information Center is a direct outgrowth of this authorization.

Part of the energy problem is its exceedingly broad scope: coal, geothermal, hydroelectric, nuclear fission and fusion, oil shale, petroleum, tar sands, tidal forces, winds, natural gas, etc. The topics that must be covered within these categories of energy sources are extremely broad as well: coal gasification, conservation, direct energy conversion, environmental protection, exploration, hydrodynamics, mining, oil and gas production, purification, storage,

transportation, demand, supply, etc.⁴ Energy information systems must answer to all of these varied facets.

Until recently, most of these aspects were covered in both governmental and non-governmental organizations as biproducts of information activities. Energy, as such, was simply grafted upon existing systems, without receiving thereby the priority that it deserves. This picture has changed, it is true, from the 1974 and following reaction. But the carry-over is still with us. Many of the agencies, private and public, which must be relied upon for energy information do not have this topic as their priority. Hence, the validity of the data is subject to some question, and the comprehensiveness of the research that provides that data is subject to even more question.

Many governmental agencies may be listed as relevant in this regard. Their contributions, however, minimal to their own operations, are vital to the total information exchange in regard to energy. The National Oceanic and Atmospheric Administration (NOAA) collects enormous amounts of data on the atmosphere, oceans, sun and space environment to solve energy problems. The Institute of Applied Technology within the National Bureau of Standards will provide precise information on building technology, especially with respect to energy conservation. The Environmental Protection Agency notes the integral relationship of energy resource development

and energy utilization to environmental problems that will require many additional energy related information and data activities. The Department of the Interior has been involved for many years in energy research, and continues as a major source of research and development activity.

Information centers, apart from the Energy Information Center, are pivotally important in the endeavor to provide access to this accumulated knowledge. The National Technical Information Service is in many ways a fulcrum, supplying through its microfiche the most up-to-date information available in the field of energy for the network of special libraries and research institutions throughout the United States which are concerned with this topic. The Smithsonian Science Information Exchange (SSIE) provides information on research also. The Atomic Energy Commission (AEC) has a well-developed science and technical information data-processing program. The National Science Foundation is another source of importance.

The major problem in seeking interaction, governmentally, is to ensure that the complex of energy operations and the need for energy information remains cognizant of the chartered responsibilities of these governmental agencies. The agencies that do not have energy as their prime responsibility must not be infringed upon unduly, even when in crisis times.⁵ The Federal Energy Administration within the Department of Energy

must seek to ensure that this difficulty is handled with finesse.

The non-governmental sources are, as pointed out, of fundamental importance. Numerous publications and services are provided by the for-profit sector alone: Weekly Energy Report, Energy Index, Energy Management Reporter, Coal Age, and the like. Well-established abstracting services were quick to add energy-related matters to their fields, and Energy Abstracts was added to the range available as well.

The non-profit research organizations, such as the Stanford Research Institute (SRI), the Illinois Institute of Technology Research Institute (IITRI), and Battelle Memorial Institute (BMI) are examples of developers of information and data systems for industry and government, energy included. Universities, such as Texas A & M, Pennsylvania State, and the University of New Mexico, are responding as well. The University of Texas (Austin) is providing research through its Center for Energy Studies, a subject that will be explored in Part III of this essay.

The National Energy Information Center (NEIC) of the Federal Energy Administration (FEA-DOE) attempts to act as the coordinating agency for energy information, as detailed in the preceding. After a hasty and chaotic start,⁶ the service has smoothed out. It began with the assumption, largely expounded above, that the development of coherent

and effective national energy policies is of tremendous importance. And, to accomplish this, the federal government must be assured of the availability of standardized, accurate, and credible energy information easily and quickly. The emphasis is upon hard data--statistical, economic, and engineering--rather than strictly research and development.

The Clearinghouse seeks to collect "every report, paper, newsletter, and book"⁷ possible, with selectivity minimized because there continues to be a paucity of hard data as opposed to R & D.

The national referral service provides access to over 70 on-line data bases. This outreach program is the flip side of the archival function that the Clearinghouse provides for the federal government, in particular the Department of Energy. The in-house technical reports in turn are provided to the public through NTIS microfiche.

From this exploration of both governmental and the private sector (profit and non-profit), one is led to conclude that the interaction must be widespread and mutually beneficial. If access to energy information is to provide the answers to our nation's problems in this field, each must be answerable. Largely, it is the government that can provide the supportive role in regard to aid for necessary, but very expensive hardware development activities. The private sector, in turn, will be expected to provide the continuity of effort on which

government can rely in crisis-provoking situations. It is best to avoid head-on competition, whatever the function that government or private sectors offer. Then the vital cooperative factor will be waiting when the crunch comes. John Hardock asserts that with this type of federal relationship to the private sector, we will have the truly national program for energy information and data that we will need in the months and years ahead.⁶

A Comparative View: Great Britain

The energy information flow in our mother country is quite different from that in the United States because of the nationalization of coal, electricity, and gas. The means for providing comprehensive flow upward and downward is far more standardized, consequently. The machinery has been in place for a considerable period of time prior to our crisis of this decade.

The Department of Energy in Great Britain antedates our own; its ancestry dates from the needs of World War II and the Ministry of Fuel and Power Act of 1943. Subsequently, the Coal Industry Nationalization Act (1946), the Electricity Act (1947), and the Gas Act (1948) came into being. Twenty years of such a bureaucratic configuration helps to ensure that the present reaction to energy needs will be built upon long-standing lines of communication. The emphasis that we must make between the private and public sectors (and our

reliance upon mutual cooperation) is simply not an issue in Great Britain. We may postulate, therefore, that their answers to their particular problems will be distinctly different, even though the fact of energy shortages is the same.

Energy information is funneled upward to the Department of Energy by three general methods: (1) collection of information by the scientific staff of the Energy Technology Division, each member of which is a specialist in one or the other of the energy fields; (2) the technical press; and (3) articles, bibliographies, abstract journals.⁹ Reliance upon the information structure integral to each sector (coal, electricity, gas) is assumed, by both formal and informal means within this framework. There are, however, old rivalries among the sectors that are just now dissipating to some extent in view of the present crisis. There is now a Research Liaison Committee of the gas, electricity, and coal industries. And all nationalized fuel industries submit their research programs to the Minister's Advisory Council on Research and Development.¹⁰

In the coal industry, six libraries provide the major informational input. Each library has different subject specialties. All have current awareness services coupled with selective dissemination of information (SDI). But one of the main problems is said to be that of persuading many departments and their executives, and associated bodies within departments, to share internal reports. Computer-based services appear to

lag behind those of the U. S., and, in particular, the lack of a basis for retrospective searching is a fundamental weakness.¹¹

The electricity sector appears to be particularly centralized. The Headquarters information services provide the bulk, rather than farming out the responsibility to various libraries. Here the benefit of an extensive library and information scientists engaged in scanning, searching activities provide the foundation of information work. These conventional means include also the preparation of Digest (a current awareness and abstract bulletin), the preparation of bibliographies, and some computer-based SDI.¹²

Within the gas industry, there are four research stations with considerable staffing to provide the traditional library and information services. Each station (or information unit) is responsible for particular segments of the industry, in regard to information flow. And each handles the reporting procedure through the preparation and the availability of R & D reports, and papers for publication. In this industry, the committee structure within these stations appears to be particularly significant. A given topic is distributed to the appropriate committee for discharge, as it sees fit.¹³

The traditional aspects of information flow in Great Britain appear pronounced. Librarians or "information specialists" do much of the researching of energy information through simple

library research. The need for more current and up-to-date information than a library can provide does not surface in studying the literature on this topic.

PART II: EXAMPLES OF ENERGY LIBRARIES AND THEIR PART IN THE SUPPLY OF ENERGY INFORMATION

The following will present in outline form the distinctive features of selected energy libraries, chosen for their outstanding collections or for their representativeness of a given type of energy library. Broad categories include the federal government, trade and professional organizations, and commercial organizations. If a particular feature seemed non-distinctive, it is not herein given; consequently, the same type of information is not necessarily given for each library.¹⁴

National Energy Information Center (FEA/DOE)

Serves both as FEA's public inquiry point and as the federal government's central clearinghouse for energy information.

Major function: day-to-day research and referral to service inquiries, accomplished in part through computer terminals which access more than 60 energy-related government and industry data bases.

Subject areas: energy consumption and conservation, energy extraction, fuel processing and manufacture, energy regulation and policy, resources and reserves, economics, power generation, energy storage and conversion, energy

transmission and distribution, transportation of fuels, supply of petroleum and its products, and environmental impact.

American Petroleum Institute Library (Washington, D. C.)

Constitutes one of most extensive collections on petroleum industry in the U. S.

Holdings include periodicals, government publications, foundation and corporate reports, speeches, news clippings, hearings, laws and regulations.

Information services: on-site use of collection, reference and referral, photocopying, interlibrary loan (public included)

American Public Power Association Library (Washington, D. C.)

Publications: Public Power; APPA Weekly Newsletter; Safety Manual.

Atomic Industrial Forum Library (Washington, D. C.)

Document coverage includes journals, government reports, and hearings.

Services: reference and referral, on-site use, technical assistance (available to public with some restrictions).

Bituminous Coal Research, Inc., Library (Monroeville, PA)

Publications: Coal and the Environment Series: Mine Drainage Bibliography, 1910-1976; Reclamation of Coal Mined Land: a Bibliography with Abstracts.

Edison Electric Institute Library (New York, NY)

Holdings: professional journals, periodicals, newsletters, government, foundation, and corporate reports, news clippings, speeches, hearings, laws and regulations.

New York Institute of Technology Energy Information Center
(Old Westbury, NY)

Provides direct printouts of bibliographies and abstracts from ERDA's Technical Information Center, NTIS, and Engineering Index.

Services: newspaper supplements, TV and radio discussions, seminars, lectures, reference and referral, printouts, publications, technical assistance, NYIT Energy Referral Service, NY Technical Energy Hot Line.

Publication: Solar Energy Today (videotape)

Texas A & M University Thermodynamics Research Center
(College Station, TX)

Services: reference and referral, consulting, data collection, analysis, and correlation, methodology information, literature searching, compilation of bibliographics, data sheets, monographs, state-of-the-art reviews, and technical reports (for fee).

Exxon Corporation Corporate Information Center (New York, NY)

Accesses data bases including New York Information Bank.

Services: on-line terminal outlet, computerized literature searching, current awareness, retrospective literature

searching, bibliography compilation (primarily for personnel).

Gulf Science and Technology Company Library (Pittsburgh, PA)

Services: on-site use of collection, reference and referral, manual and computerized literature searching, current awareness, SDI, statistics collection (on individual basis).

Institute of Gas Technology Technical Information Center
(Chicago, ILL)¹⁵

World's largest collection of information on gas technology.

Worldwide sources as well as work at IGT.

Holdings: 13,000 books, 10,000 bound periodicals, 4,000 abstracts volumes, 3,000 industry and government reports, 2,500 patents, 25,000 microfiche reports of government-sponsored research, 375 periodical subscriptions.

On-line access to bibliographic data bases.

Statistics: (1978) 3,939 reference questions, 382 literature searches, 2,965 requests for articles fulfilled.

PART III: A CASE STUDY OF AN ENERGY RESEARCH LIBRARY--
THE ENERGY INFORMATION SERVICE, UT

The Energy Information Service on the campus of the University of Texas at Austin is the informational arm of the Center for Energy Studies. As such, we will explore background material on the Center before proceeding on to an evaluation of the special library itself.

The Center for Energy Studies¹⁶

The Center for Energy Studies began in 1974 as a central liaison office for energy research, educational, and public service activities within the University. Today some 40 full-time staff are employed (eight professional, the remainder support), and some 125 students work part-time on the various projects of the Center. The operating budget for 1978-79 exceeded \$3,000,000. The Center is organized around its director and its nine divisions: conservation, electric power, environmental studies, geothermal, nuclear studies, social systems analysis, solar studies, technology assessment and forecasting, and services. Projects are ongoing in each of these divisions. The Energy Information Service is, logically, a part of the ^{sc}final division, which also includes clerical and word-processing support.

Despite the large funding for the 1978-79 year, the current situation is not so propitious. As a result of budgetary cuts for the upcoming year, the Energy Information Service (operating with approximately \$40,000 out of the \$3,000,000 overall) will operate with a locked door for the foreseeable future. A student assistant will handle checking in of periodicals and the like, but no professional will be on hand for reference aid and the ordering of new materials will be halted. Unfortunately, this situation is the solution all too often found in a research setting; if funding is cut, the special library is the first to go. The vital informational undergirding for the projects that the researchers carry out is not, because of priorities that are subject to question, seen as imperative to a considered research endeavor. We will first consider the library as constituted at the time of its closing, and then move into some recommendations that would suggest additional means by which the Center could have benefited from the continuance and the expansion of its information service.

The Energy Information Service

As described in the manuscript for an unpublished brochure,¹⁷ the Energy Information Service (EIS) is a diverse collection of energy-related materials ranging from magazines to monographs to microfiche. The collection, prior to plans for closing, was open stack, and contained approximately 23,000 titles in

shelf holdings, microfiche, and periodicals. Shelf holdings are divided into the following categories: coal, conservation, electric power, environmental aspects, general, geothermal hydrogen, nuclear energy, petroleum and natural gas, solar and wind energy, storage, and wastes. The reserve and reference sections contain specialized and general information source guides, government agency guides, atlases, statistical handbooks, bibliographies, and copies of federal and state legislation. Shelf holdings are classified according to a modified Library of Congress scheme.

Microfiche make up a large volume of the total holdings: some 17,000 titles, received through the National Technical Information Service (NTIS), and the U. S. Department of Energy (DOE). Microfiche are arranged by alphanumeric code, but there is also a title card catalog to aid in the location of a specified citation. A microfiche reader and reader-printer are provided.

More than 200 periodical titles are available in the library on continuing subscription. Periodicals include magazines, journals, trade dailies, newsletters, bulletins, and newspapers. Both technical and nontechnical publications are included in the collection.

Eleven abstracting and indexing services are under current subscription. For the information of readers interested in titles in this field, the list is given in its entirety:

Energy Abstracts for Policy Analysis

Energy Conservation Update

Energy Index

Energy Law Service

Energy Research Abstracts

Euro Abstracts

Fossil Energy Update

Fusion Energy Update

Geothermal Energy Update

Solar Energy Update

Weekly Government Abstracts

The card catalog for shelf holdings is by title and subject only. An interesting feature of this catalog as well as of the shelf holdings is that both are color coded by subject for easy retrieval by librarian or user.

The services of the library, prior to closing, featured general reference. One feature of current awareness was available, however: a monthly acquisitions list. And a recent activity featured a library-produced display for the third annual conference for Teachers of Free Enterprise at the Lyndon Baines Johnson Library, a project which enjoyed considerable success.

Recommendations

What range of service might the library provide if it reopens with sufficient funding? Patricia Calderhead provides

a ready classification of the degree of service that may be provided by a special library, dependent upon staffing and funding.¹⁸ Level 1 is "basic library service," and consists of maintaining a reference library of essential material. The activities of the library are confined to such matters as ordering publications, displaying, circulating, and filing them. Level 2 is an intermediate range that she identifies as "basic plus a supplementary service." The supplementary service in this case she envisions as mainly a question-and-answer reference service, with information unique to the parent institution kept to a minimal degree, able to be retrieved upon request from a staff member. This appears to be the level provided just prior to closing of the Energy Information Service. Level 3 is "full information service," which is "fully comprehensive" and anticipates the information needs of the clientele. This latter category is the degree of service that the special library is known for, and, its librarians would like to think, does best. It is the recommended route for the EIS upon reopening. This requires that the librarian be knowledgeable about the projects underway, and bring to researchers' attention before being asked current materials that are pertinent. The basic attributes of this degree of service are the dissemination of information and materials (usually denoted "current awareness service") and an intensive reference service. The latter is the simplest concept, and

we will discuss this before moving on to current awareness and the multiple avenues that this concept of service can take.

The specialized reference service that a special library seeks to provide is built upon a systematic, intelligent organization of the information contained within the various publications and predicated upon the skill of the librarian in either assimilating this knowledge personally or having fingertip control of its source. Expertise is the prime factor in success.

The librarian sometimes has to locate simple facts, or to identify and obtain printed information sources, and sometimes to make a complete literature search to locate some specific facts or to provide bibliographies. Even if the professional does not have specific training in the field of energy, the unique skills in information techniques that should be his forte will make him more efficient than other members of the research staff in identifying and coordinating materials on the subject. And once the staff as a whole is aware of this, the librarian will take a valued place as a skilled contributor to the team effort.

Usually the current awareness service is the prime product of the special library. If done in depth, with a keen knowledge of the needs of the clientele, it will assure that a good working relationship, a team effort between the

researchers and the librarian, is maintained. The library staff is made responsible for the bibliographical preparedness of the research staff, while the latter continue their project efforts with the newly acquired knowledge--both groups working best to fulfill the aims of the Center for Energy Studies. For the library's part, the success of the information service depends largely upon the librarian's extensive knowledge of the interests of his research colleagues.

There are a variety of methods in which information may be distributed. The advantages and drawbacks of each will be discussed. One common, but not entirely satisfactory solution, is the routing of current periodicals through the research staff. If a large staff, multiple copies of the periodicals are required; and the particular interests of individuals indicate that different periodicals are routed to different people. The drawbacks probably outweigh the advantages. Lists must be made up, with rank order of receipt of the periodical; the individuals at the top of the list obviously have the greatest advantage. If the library handles a shuttle system, considerable time can be expended simply in keeping the system going; if the clientele are instructed to pass along the periodical, delays and losses are frequent, and the library can never give an answer on the location of the several periodicals. In a small operation, however, this procedure can work well; much depends upon the attitudes evinced by

the individuals concerned, their cooperation and responsibility even in what may seem small matters. In the Center, since professionals does not seem prohibitive in regard to number; routing remains a viable option, therefore.

In the absence of circulating the periodical itself, a satisfactory substitute may be the photoduplication of the tables of contents of relevant periodicals, and the loaning of these to the clientele. The individual may then simply circle the articles that appear interesting to him, and the entire text may be photoduplicated and returned. Considerable time and perhaps wasted effort in photoduplication, not to mention expense, are the disadvantages. One cannot always tell from the title just how relevant the information will be. One variation on this procedure would be to photocopy the tables of contents of the most relevant periodicals for a given professional, and then that professional is free to stop by the library at his convenience to satisfy his curiosity about any article of interest.

A third method of keeping the clientele aware of the resources of the library is a bulletin that, by subject, prints the current list of accessions--the one method of current awareness that was employed by the Service. This can be a drawing card to bring clientele into the library; it can also simply be glanced at and discarded. Usually this method is a "second-best" choice, implemented when

the library staff is so inadequate to the size of the operation that detailed information on acquisitions cannot be prepared. It is also the choice when the library staff must spend many hours in organizing the collection, due to backlog of uncataloged materials, as was the case with the Energy Information Service.

An improvement on this basic concept is the inclusion of full bibliographical details on each document cited. As an index to current literature, the bibliographical details are not that much more time-consuming to reproduce, and the value of the accession list is upgraded somewhat.

Fifth on the list of possibilities is the best alternative, theoretically, yet discussed: the abstracts bulletin. The optimal solution is a bulletin prepared internally by library staff who are familiar with the particular needs of their clientele. Abstracts thus are prepared of periodical articles with the emphasis placed upon those aspects that are relevant to the research underway. Increasingly, however, would this position be challenged. Abstracting bulletins from the outside are becoming available much more readily than previously, and although subject emphases may vary from the specific needs of a given organization, more and more special libraries are utilizing these services. The time and expense of producing an internal product does not seem warranted, and the quality of the external product may be superior. Lacking adequate

staff and funding, one has little choice but to rely upon the outside--and there are few libraries today that do not do so, to a greater or lesser extent. The eleven energy abstracting and indexing services currently under subscription, if properly advertized, would seem appropriate rather than an internal product.

Another type of information bulletin is desirable for internal use: a bulletin designed for staff of other categories than research. The bulletin typically reorganizes and restates current information pertaining to the fields of the organization's main interests, in a popular vein, writing in an informal, critical style, to make the information palatable to the non-researcher. As a public relations gesture, this has much to recommend it. There are desirable awareness and team effort aspects of informing everyone of the particular concerns of the organization.

In the same vein, a daily news bulletin may be prepared by the library, to be sent out prior to the noon hour. This has the great advantage of immediacy, and subjects not directly of library concern may be included. Again, this is a public relations gesture more than anything else, and may be carried out by other means within the organization. If, however, the library is recognized as the "hub" of the operations, any "extra" such as this will enhance the use of the specific services that are directly the responsibility of the library.

The last method of dissemination of information which will be discussed is the most sophisticated and the most precise: selective dissemination of information, or, as popularly known, SDI. At its simplest, SDI requires that interest profiles for individuals be prepared, and these profiles are then matched (sometimes with the aid of computer) with new literature that appears to speak to the individual's given interests. The "hit" ratio of a complex operation can be quite high, but because individuals often do not know how, in the beginning, adequately to assess their interests, close monitoring of results and then updating (at least yearly) must be done for an effective operation. The interest profiles may be, as cited above, for individuals only, or group profiles may be developed. In principle, the purpose is to reduce the "shotgun" approach of the wide-ranging abstracts bulletin and to make more manageable the information. The preparation of an SDI service is tedious and time-consuming in the beginning, and close monitoring adds to the time factor, but no alternative had been found that answers as many needs of as many people.

With SDI, the abstracts bulletin recedes in importance, although a mix of services seems at this writing to be preferred in special libraries. Similarly, the other methods of dissemination may receive review, with a view toward eliminating the non-essential, especially when the cost factor, both in staff time and actual production, is considered. It should

be stressed that computer matches are not essential for SDI, although in this age the possibility of such sophisticated methods is usually explored. It is quite possible to have a good SDI service handled entirely by the librarian who knows the specific interests of his clientele--and he should know those interests because it is part of his job to know what kind of projects individuals and groups are working on. In the latter case, quite informal arrangements may be worked out, with alterations in the interest profile made readily by the librarian, upon the agreement, tacit or otherwise, of the recipient.

Attitude is important to the concept of service. In a traditional role, the special library would be a custodian of information, having great expertise in the location, indexing, and dissemination of literature--but in a passive or reactive manner. Today, the "information center" or special library is fast moving toward a new concept of service that is best characterized by words such as dynamic and involved.

Communication is stressed, indeed as much as would be evident in discussing strictly a public relations operation. The information staff (i.e., library professional) must be ready to "listen, interpret, advise, and help at all times."¹⁹ In preparing a new librarian for duties in a special library, it is perhaps easy to get across the concept that a ready smile creates a favorable impression of him as well as of the library.

Less easy to convince is the idea that vastly different impressions may be created by different responses to an inquiry. For example, contrast the response, "I'm sorry, but we don't have it," with "I'm sorry, we don't have it, but we'll get it for you." The same concept is exemplified in the pair of responses, "I don't know," with "I don't know, but I'll find out and contact you."²⁰ Such supposedly "small" matters are the daily details that add up to the impression of the relevance of the library service to the ongoing operations of the parent organization.

Also important in this same concept is the speed of response and the operation of an efficient loan control system. When requests are received, it is strongly advised that they be acknowledged promptly or the inquirer is advised of any delay. Such advisement will usually result in a surprisingly patient inquirer in most cases, but not hearing anything at all is grounds for irritation, and, eventually, not calling upon the library at all. If requests for purchase are received, the requestor should be informed if undue delays result. Often the delayed order is not the source of annoyance, but the long silence. A simple, organized system of advisement will enhance the library's image out of all proportion to the effort required.

These ideas are expressed in similar terms by Janice Landedorf. She stresses that "never ending innovation" is the mode in modern organizations. They are based upon highly

trained, creative people with a variety of skills. This particular socio-economic environment has, to her mind, created a new role for the special library. Any appreciable delay is no longer acceptable. Accordingly, the role of the special librarian is to aid in exploiting informal resources as effectively as possible. Direct service to users is the most crucial part of a special librarian's job, and librarians who confine themselves to traditional library tasks are not going to succeed. In the modern organization, the degree to which the librarian saves both time and money for the total operation, is the degree to which existence is largely justified. The user service orientation--whether through literature searching, reference work, SDI, etc.--reflects how much is in fact done for the client, if the special library is worthy of its name.

As in the case of all libraries, however, there is a problem with the non-user, the individual who could and should profit from the library, but who chooses not to participate. User studies, according to Ladendorf, have found that only a small percentage of prospective clientele actually make use of the services of the library. But once a prospect is convinced that he can find value there, he becomes increasingly interested in a sophisticated range of services. Ladendorf asserts that here, as everywhere, we must change the poor public image of the library: Libraries are often regarded as

nice things to have, but poor places to visit. Once the prospective user realizes that the librarian is expert in locating and dealing with indexing systems, reference sources, etc., the user will gladly relinquish to the librarian as many of his informational problems as he can. But librarians must realize that the library may need to be "redesigned" to fit the user--rather than trying to change the user to fit the library. Any obstinate non-user is likely to melt in the face of justifiable evidence that any order, search request, or informational need will bring forth from the library a satisfactory response with a minimum effort on his part. The effective information service is the one which has succeeded in convincing its clients that it really cares about satisfying their informational needs.

Optimally, the librarian acts as an information broker--an active liaison between the research effort in projects and the research effort in the library. Active participation in the organization enables the library staff to anticipate potential demands, to offer to carry out searches in the field prior to research and development work, and to produce "state of the art" reviews. This reiterates the need for the staff to interact effectively with the users of their informational product--to get out among the users and to discover their real needs and also their future intentions. Such an ongoing dialogue is the most satisfactory communication method

of all.

The crux of public relations for the library is seen as the basic premise that people who like a library will try to help it. Consequently, the librarian should know exactly what work is taking place at the moment in the parent organization and what is being planned for the future, so that materials can be gathered and a study of important outside contacts can be made before the actual need occurs. If librarians do not have ready access to such knowledge, even if of a confidential nature, then the library has not sold itself.

All too often the library is seen as merely a tool, to be used when needed, and the librarian merely an organizer and arranger who fumbles for right answers when requested. The desirable view starts with a neat, attractive library, a place that one would like to visit and stay awhile. It is the center for action, but not hectic action or unorganized action. If the librarian and his staff are always ready, prepared, and eager, the clientele will build with them good working relationships, based at least in part upon informal relationships forged because the library staff have made themselves part of the team.

Suggested Budget

STAFF

Professional Information Specialist	\$15,500
(Fringe benefits not covered in this budget, but should equal about 30%, or \$4,650)	
Library Technical Assistant	10,500
(Fringe benefits: \$3,150)	
Total:	<u>\$26,000</u>

MATERIALS

Periodicals (200 x \$45)	9,000
Government publications (288 x \$2)	576
Dissertations (40 x \$7.50)	300
Pamphlets (50 x \$.50)	25
Abstracting and Indexing Services (10 x \$150) ¹	1,500
Microfiche (4500 x \$.65)	2,925
Books (1/10 x 6,000 x \$35) ²	<u>21,000</u>
Total:	<u>\$35,326</u>

Travel, supplies, binding, photocopying
(1/6 of materials) \$ 5,888

Materials	\$35,326
Staff	26,000
Travel, etc.	<u>5,888</u>
	\$64,214

(Library type: 40-60--approximately 40% of budget for staff
and 60% for materials)³

1. Present A & I services are considerably less, but the average for the field is \$150 minimum. It appears that the less expensive ones are currently purchased, and it might be advisable to purchase fewer, but those of greater coverage and quality.

2. Replacement rate should be 1/5, but would mean that periodicals vs. books ratio would be far off. It would appear that more periodicals should be purchased relative to books (1/3 of amount spent for periodicals should generally be spent for books).

3. This is a recommended ratio for a special library. The budget is a very small item in a \$3,000,000 operation, but a vital one that should not be neglected.

SUMMING UP: WHAT LIES AHEAD FOR LIBRARIES?

Why should, perhaps, all librarians in the United States be concerned with the information problems made apparent by the 1973-74 Oil Embargo? Technology, in the view of Boyd Keenan, has, particularly in the energy field, ended the concept of provinciality.²¹ Obviously, what holds true for the library in general holds to the nth degree with energy libraries.

There must be network linkages to the Department of Energy and the Federal Energy Administration. Because, as we stated at the outset, the industries are the chief source of concrete, reliable data, then we must draw their information systems into the network in an integral fashion. These corporations control most of the critical data required to formulate reasonable public policy. But, in Keenan's view, the chief lesson to be learned from the floundering that characterized the response in 1973-74 is that private industry should not be the primary repository for information or "knowledge" in an area critical to the public interest. The country's well-being is likely to be increasingly dependent upon energy information systems built by libraries in concert.²²

For that reason, a national network of energy resources--
public and private, profit and non-profit--is imperative to
meet the onslaught of energy crises of the future.

NOTES

1. Keenan, Boyd R., "The Politics of Technological Forces in Library Cooperation," Library Trends 24 (2) (October 1975): 189.
2. Ibid., p. 185.
3. Ibid., p. 186.
4. Murdock, John, "A National Program for Energy Information," Bulletin of the American Society for Information Science 1 (1) (June/July 1974): 13.
5. Ibid., p. 33.
6. Albert, Ted, "The Energy Clearinghouse--An Art, Not a Science," Bulletin of the American Society for Information Science 2 (5) (December 1975): 23.
7. Ibid.
8. Murdock, John, "A National Program for Energy Information," p. 33.
9. Riemsdyk, A. K. van, "R & D Information Services: the Role of the Department of Energy," Aslib Proceedings 27 (4) (April 1975): 130.
10. Conchie, S., and Ransbethram, "National Coal Board R & D Information Services," Aslib Proceedings 27 (4) (April 1975): 133.
11. Ibid., pp. 133-139.
12. Mullins, P. R., "Central Electricity Generating Board R & D Information Services," Aslib Proceedings 27 (4) (April 1975): 145.
13. Wiggings, R. E., "British Gas R & D Information Services," Aslib Proceedings 27 (4) (April 1975): 154-167.
14. Unless otherwise noted, the source of information in the succeeding list of libraries is Energy Information Locator: A Select Guide to Information Centers, Systems, Data Bases, Abstracting Services, Directories, Newsletters, Binder Services, and Journals (New York: Environmental Information Locator, 1977).

15. "Technical Information Center," Institute of Gas Technology, annual report, November 16, 1978, p. 22.
16. "Center for Energy Studies," n.d., Files of the Center for Energy Studies, University of Texas at Austin.
17. Untitled manuscript, n.d., Files of the Center for Energy Studies, University of Texas at Austin.
18. Calderhead, Patricia. Libraries for Professional Practice (London: Architectural Press, 1972):, p. 15.
19. Batten, W. E., ed. Handbook of Special Librarianship and Information Work. 4th ed. (London: Aslib, 1973), p. 396.
20. Ibid.
21. Keenan, Boyd R., "The Politics of Technological Forces in Library Cooperation," Library Trends 24 (2) (October 1975): 184.
22. Ibid., p. 189.

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27 (4) (April 1975): 126-131.